

REMARKS

Reconsideration of the application is requested in view of the above amendments and the following remarks. Claims 1 and 2 are amended. Claims 1-5 are pending in the application. Changes made to the application by the current amendment are shown in the attached "Version with Markings to Show Changes Made". Support for the amendments to claims 1 and 2 and for new claim 5 can be found in the summary of invention at pages 3-5 of the specification. The feature of claim 5 also is apparent in the drawings.

The title of the invention has been replaced with a new, more descriptive title.

Claims 1-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Oguro et al., U.S. Patent No. 4,961,021, in view of Kawabata, U.S. Patent No. 4,876,479. Applicants respectfully traverse this rejection.

Oguro discloses a convergence yoke 39 positioned in the electron gun side rearward of a deflection yoke 37. The convergence yoke 39 generates a bipolar magnetic field 7 between core protrusions a, a'. The bipolar magnetic field 7 causes an electron beam to be preliminarily deflected in a vertical direction. However, because the convergence yoke 39 is driven by a current flowing in synchronization with a horizontal or vertical deflection current (column 1, lines 41-54), the effect of the bipolar magnetic field 7 is different from the effect of the preliminary vertical deflection force, set forth in claim 1. Claim 1 further requires that the preliminary vertical deflection force applied when an electron beam is deflected toward the peripheral portion in the vertical direction of a phosphor screen is made relatively smaller than the preliminary vertical deflection force applied when an electron beam is deflected toward the middle portion in the vertical direction of the phosphorus screen, which is different from the effect of the bipolar magnetic field disclosed by Oguro.

Further, the bipolar magnetic field 7 disclosed by Oguro is applied to correct a pincushion distortion 102 (see Figure 1 and column 1, lines 41-54), rather than to increase an upper and lower pincushion distortion, as required by claim 1. Thus, the outcome of applying the bipolar magnetic field disclosed by Oguro is opposite to the purpose and effect of the preliminary vertical deflection force required by claim 1.

The Kawabata reference fails to remedy the deficiencies of Oguro. Kawabata discloses that the addition of a correcting circuit makes it possible to substantially eliminate distortion

because the magnitude of the divergence Δy of the horizontal line away from the x-axis increases substantially proportional to $x^2 y$ as the distance from the center of the phosphor screen increases (column 4, lines 39-64). However, this disclosure is only a general explanation of the correction of pincushion distortion and fails to disclose the specific limitations set forth in claim 1 related to preliminary vertical deflection forces when an electron beam is deflected toward a peripheral portion in the vertical direction versus when an electron beam is deflected toward a middle portion in the vertical direction.

Therefore, Applicants submit that neither the Oguro nor the Kawabata references disclose or suggest all of the limitations of claim 1, and the claims that depend from them. Withdrawal of the rejection is requested.

In view of the above, Applicants request reconsideration of the application in the form of a Notice of Allowance.



Date: _____

August 12, 2002

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification

The title of the application has been replaced at page 1, line 1 as follows:

COLOR PICTURE TUBE APPARATUS WITH PINCUSHION DISTORTION

CORRECTION

In the Claims

Claims 1 and 2 have been amended as follows:

1. (Once Amended) A color picture tube apparatus comprising
a color picture tube provided with an electron gun and a phosphor screen on which an electron beam emitted from said electron gun impacts, in a bulb including a front panel and a funnel, and

a deflection yoke attached to a neck portion of said bulb and deflecting said electron beam,

wherein said color picture tube is further provided with a preliminary deflection member for applying a preliminary vertical deflection force to said electron beam [an upper and lower pincushion distortion in a peripheral portion in the vertical direction is increased by making a] such that the preliminary vertical deflection force when an electron beam is deflected toward the peripheral portion in the vertical direction of said phosphor screen is made relatively smaller than the preliminary vertical deflection force when an electron beam is deflected toward the middle portion in the vertical direction of said phosphor screen, so that an upper and lower pincushion distortion in a peripheral portion in the vertical direction is increased, and

wherein said upper and lower pincushion distortion in the peripheral portion in the vertical direction is corrected by a deflection magnetic field generated by said deflection yoke, thereby correcting an upper and lower inner pincushion distortion in said middle portion in the vertical direction.

2. (Once Amended) The color picture tube apparatus according to claim 1, [further comprising] wherein the preliminary deflection member comprises a correction coil mounted at the side of said electron gun of said deflection yoke, [for providing said electron beam with said preliminary deflection force] and

wherein a vertical deflection current flows through said correction coil when said electron beam is deflected toward the peripheral portion in the vertical direction of said phosphor screen, but a vertical deflection current does not flow through said correction coil when said electron beam is deflected toward the middle portion in the vertical direction, and

said correction coil generates a preliminary deflection magnetic field opposing the vertical deflection magnetic field by said current flowing when the electron beam is deflected toward the peripheral portion in the vertical direction.